The Groundplane

VOLUME 10 ISSUE 11

NOVEMBER 2009

SBARA Nominations and Elections

NOMINATIONS FOR THE 2010 SBARA PRESIDENT AND OTHER BOARD MEMBERS NOW OPEN.

Positions for the 2010 Board of Directors (BOD) are now open for your nomination. A complete slate of officers are necessary for an effective leadership team. A number of members have shown interest in running for the board so if you're asked by the nominating committee to run for office, be assured you will not be alone if you say yes.

The elected positions open for nominations are:

President

Vice President

Treasurer

Secretary

We are asking that members be willing to serving their amateur radio association by accepting nominations for these four elected positions. Term length is one year. Without new, energetic members serving one year in a leadership role the association cannot be effective in serving the needs of the Tri-Cities amateur radio community.

Please be open to serving on the 2010 SBARA Board of Directors.

Al Rendon wt6k

Special Interest…

- SBARA Elections— 2010 Officers
- Math of Morse Code
- Membership renewal Time!

Special Interest

2009 ARRL Field Day

Displaying entries for **Category=2A** and **Section=EB**
Entries 1 to 2 of 2 listed

#	Call	Score	Category	QSOs	Power Mult	GOTA Call	Section	Participants	Club
1	KU6S	2,901	2A	1,355	1	AE6YN	EB	50	South Bay ARA
2	W6CX	2,182	2A	723	2		EB	27	Mt Diablo ARC

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Membership Renewal Information

Membership Renewal Policy

Effective 2010, renewals of membership will only be accepted through March 31st. Beginning on April 1st only new membership will be accepted.

Therefore, after April 1st you will be required to pay the $10 new membership fee to retain you SBARA membership.

PLEASE RENEW YOUR SBARA MEMBERSHIP BY MARCH 31, 2010 TO AVOID THE $10 NEW MEMBERSHIP FEE.

To save on postage please be aware that the renewal package that you received is the only membership renewal notice you will be receiving in the mail. Accordingly, to save postage we are including your 2010 membership card trusting that you will be sending in your membership renewal fees.

Thank you for your continued support. Looking forward to a eventful 2010.

SBARA Leadership Team
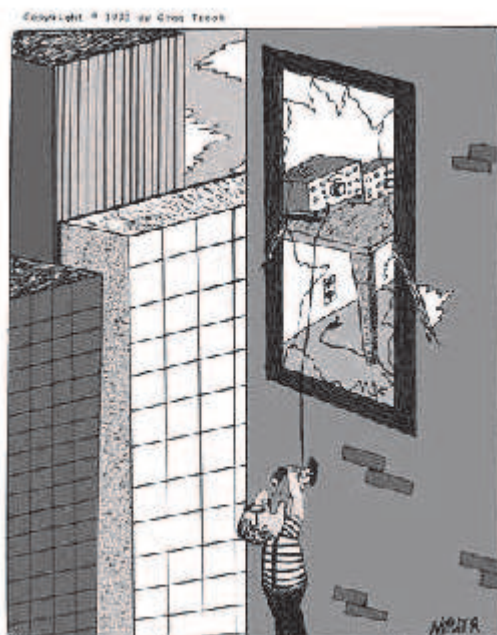
"Sorry about the noise. I tripped...anyway, the name here is Roy...I am located near downtown Chicago, and I've been a ham now for 20 years..."

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The End Of Incandescent Bulbs

130 years or so ago Edison tested his first useable light bulbs. Not a bad run for a product. had written about this a few years back when it was far off dates and talk but the reality is upon us. On September 1st the European Union ban on incandescent light bulbs went into effect. This covers the 27 countries of the EU. Manufacturers can no longer produce bulbs 100 watts or larger. Smaller unfrosted bulbs will be phased out by wattage steps with 60 watt by 2011, 40 watt 2012 and the end being in 2016. While this is the largest action to date Cuba, Australia, and Canada had already started the process of eliminating incandescent bulbs.

In the US the law takes effect in 2012 with 100 watt and above bulbs and by 2014 the 40 watt will be eliminated. The primary replacement is the Compact Fluorescent Lamp (CFL) that swirly glass tube on a base. Besides CFL's other energy saving bulbs are becoming available. When I last wrote LED bulbs were over $100 but Panasonic now has LED bulbs for about $40 and falling. These lamps are designed to have light color closer to that of incandescent lamps.

Light color is one complaint about CFL lamps. The LED lamps use about 1/8th the power of incandescent amps and would last 19 years if used 5-1/2 hours a day.

There was concern among Hams about the RF noise that early CFL lamps produced and its effect on HF communication. Personally our house has been primarily long tube fluorescent bulbs for 30 years and in the last few years almost all the incandescent bulbs in lamps and fixtures have been replaced with CFL bulbs. The biggest issues I have experienced is they are slow starting and to get to full output when cold in outdoor fixtures in the winter.

Another argument against CFL bulbs is they contain mercury. The Colorado Environment website says "…if all the 290 million CFL's sold in 2007 went to a landfill (versus recycled, as a worst case scenario), the overall release of mercury would add up to 0.13 metric tons of mercury." The EPA estimates that 104 tons of mercury is released each year primarily from coal fired electrical power plants. In a more direct relationship a coal power plant would emit more than five times the mercury powering the incandescent bulb that an equivalent CFL would replace. Random Facts A world wide shift from incandescent bulbs to CFL's would save the electricity of 270 500 Megawatt coal fired (or other) power plants.

The US government says replacing one 100 watt incandescent bulb with a 24 watt CFL, its lighting equivalent, would save over its lifetime the gasoline equivalent sufficient to drive a Toyota Prius from New York to San Francisco.

Stan KD1LE

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Ohm's Law

The "magic circle"

E

I   R

Ohm's Law   E=I/R   where
E=volts, I=amps and R=ohms
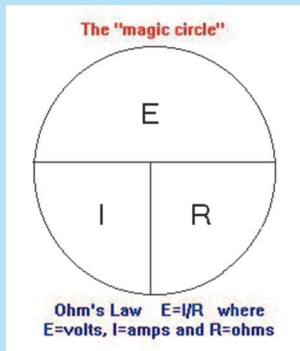
The basic formula for Ohm's Law is voltage (E) equals current (I) times resistance (R), or E = I x R. On the test, there are several questions where they give you two of the values and ask you to calculate the third. If you're asked to calculate the current, you use the formula, I = E / R. If you need to calculate the resistance, use the formula R = E / I.

How to Calculate Power

P

I   E
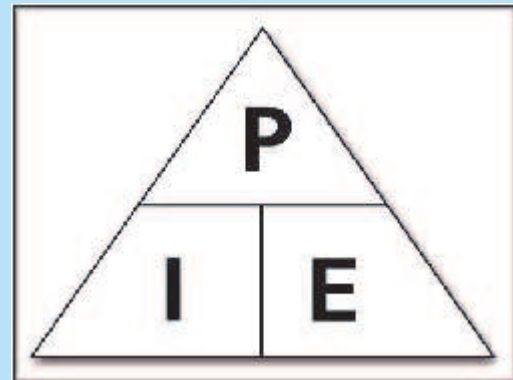
The formula for calculating power is power (P) = voltage (E) times current (I), or P = E x I. To calculate the current drawn, when given the power being consumed and the voltage applied to the circuit, use the formula I = P / E.

SBARA CW Practice Group

Dear CW enthusiast (or prospective enthusiast),
we are happy to announce that we again picked up holding CW practice sessions.
These sessions will take place:

**every Wednesday and Sunday
at 7:30 p.m.
on 21.175 MHz +/- 5 kHz.**

Note: this frequency may be used by Technicians, Generals and Extra Class amateurs - however for Technicians in CW only.

Please don't hesitate to check in. We will slow down for you, don't be scared away if somebody is really fast

there! Just send a "bk" and your callsign, we will adjust to your skills.

We will always listen on the WA6PWW repeater (147.015 (+) MHz).
Ask there if you have questions or problems with your setup.
Listen there shortly before the round starts, usually we will announce the session.

Looking forward to meeting you on 15 meters!

Al, WT6K and Bernhard, AE6YN

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Morse Math

Bernhard Hailer AE6YN – ae6yn@arrl.net
Thanks to Steven T. Abell (KJ6CYE) for reviewing this text!

The first part of this article was written over 10 years ago, when the author created a personal web site (not on line at the moment). However the second part is new, it describes how to etch Morse code into silicon, i.e. the theory of how to program a microcontroller so that it can transmit this code and/or understand it.

Morse code is the oldest digital communications code, it was developed for wirebound and wireless transmission. Digital?! Yes, digital - it's on and off! Dots and dashes are on (1), and the breaks in between are off (0). To make it truly digital, we need to understand that this is time based, the length of the '0' (dit) and the '1' (dah) defines at the end what's being sent.

The original telegraphy code Samuel Morse invented was more complicated, but here we will only discuss the code used today. Morse code is very well defined. These are the rules:

A time unit defines how fast the transmitted code is.

• A dot is one time unit long.

• A dash is three time units long.

• The pause between dots and dashes is one time unit long.

• The pause between characters is three time units long.

and the pause between words is seven time units long.

Let's illustrate this with the word PARIS, sent in a loop:

We have chosen this because it is a standard example: PARIS is often used to measure the speed of a telegraph operator in WPM (or CPM). If you can send PARIS twelve times per minute (or any other code consisting of a total of 12

times 50 time units), you are transmitting 12 WPM (or 60 CPM). From this, we can calculate
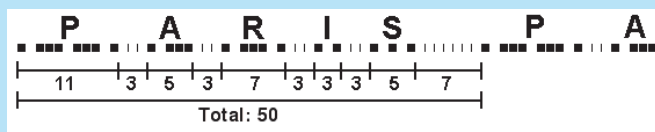
the length of one time unit.

For a speed of 12 WPM, that would be:

$$\frac{60 \text{ sec}}{12 \times 50} = 0.1 \text{ sec}$$

In words: at 12 WPM, a dot would be 100 ms long, a dash 300 ms.

It has been recognized that PARIS does not provide the ideal statistical distribution of dots, dashes, and the various pauses in between. CODEX (consisting of 60 time units) is much better. If you compare the speed determined using PARIS and CODEX, the latter is 20% faster, but PARIS is well established and is still used.

These are the Morse characters used internationally, some variants nationally [wiki]:

a .-	n -.	1 .----	? ..--..	Error ....
b -...	o ---	2 ..---	. .-.-.-	Begin -.-.-
c -.-.	p .--.	3 ...--	, --..--	End .-.-.
d -..	q --.-	4 ....-	= -...-	EOT ...-.-
e .	r .-.	5	/ -..-	Wait .-...
f ..-.	s ...	6 -....	@ .--.-.	Repeat .. ..
g --.	t -	7 --...	: ---...	
h	u ..-	8 ---..	ä .-.-	
i ..	v ...-	9 ----.	ch ----	
j .---	w .--	0 -----	ß ...--..	
k -.-	x -..-	ö ---.		
l .-..	y -.--	ü ..--		
m --	z --..			

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List of most used Morse characters, international and special

Programming Morse Code

The author spent a Sunday afternoon developing a system that stores each full Morse character in one unique byte. In other words, 8 bits are enough to store any sequence of dashes and dots for the Morse characters we use in daily ham life. This is useful in cases where memory is precious, e.g. when programming microcontrollers. The final goal of this project is to program an AVR microcontroller to do various Morse related tasks (Morse practice device, keyer, Morse decoder); an AVR Butterfly [AVR] might just be the device for this task: a $20 nano computer! However that remains to be done.

This article only discusses the background of how to encode Morse characters into bytes. The original idea came from Wau Holland, DB4FA (sk) [no quote available], but it was refined to encode all Morse characters. It allows even the character for "error" (8 dots).

These are the basic rules for encoding a Morse character into eight bits.

A dash will be a '1' bit, a dot a '0' bit.

The Morse code itself will fill the least significant bits of a byte.

If a Morse character is four or fewer dashes and dots, then the most significant two bits will be '1', and the next two significant bits will define how long the character is: 00 for 1 dash or dot, 01 for two dashes and/or dots, 10 for three, and 11 for four.

If the Morse character is 5 dashes and/or dots long, the three most significant bits are 100.

If the Morse character is 6 dashes and/or dots long, the two most significant bits are 01.

If the Morse character is 7 dashes and/or dots long, the two most significant bits are 00 (this requires that 7 dash/dot codes must start with a dot, and that is the case for all characters I found in the web).

If the Morse character is Error (8 bits), the byte is 00000000.

If the Morse character is SOS (9 bits), the byte is 00000001.

This allows all combinations of dots and dashes described in the list of Morse characters above, and more.

Please contact the author for a Morse to byte code conversion table.

[wiki] http://en.wikipedia.org/wiki/Morse_code

[AVR] http://www.atmel.com/dyn/Products/tools_card.asp?tool_id=3146

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Webmaster
        Umesh Ghodke, K6VUG
Quartermaster
        Open Position
Program Facilitator
        Al Rendon, WT6K
Refreshments
        Open Position

Fremont Repeaters & Net Information

WA6PWW -	147.015 +600Khz,	PL 103.5
WA6PWW -	223.900 –500Khz,	PL 107.2
WA6PWW -	442.600 +5Mhz,	PL 107.2
K6AIR -	146.940 –600Khz,	PL 123.0
K6AIR -	441.525 +5Mhz,	PL 123.0
ARES -	Tuesday @ 7:30pm -	
	147.015 + PL 103.5	

SBARA Meeting Location

Our meeting location is at Hurricane Electric.

The address in Fremont is:

760 Mission Court — Come to the meeting.

Bring your HF transceiver, antenna) or HT !

Talk-In 147.015Mhz. +600

Also consider joining us at Wok City Diner for Dinner at 6PM

Mingle with your fellow SBARA members and Guests!!!!

The **South Bay Amateur Radio Association** is a general interest amateur radio club serving the Fremont Tri-City area. The club has been in existence since 1974, and has functioned continuously ever since. We are an ARRL Special Service Club, a California not-for-profit tax exempt organization as specified in IRS Stat- utes. We sponsor training for new hams, license examination sessions, and participate in various public service events. If you have a specialized amateur radio interest, chances are you can share it with one or more of our club members.

SBARA meets on the 2nd Friday of every month at Hurricane Electric in Fre- mont, California. The meeting begins at 7:30 PM. After conducting business, coffee and snacks are served while we socialize. Following the break, a program of interest will be presented. All persons interested in amateur radio are invited to attend. Families are welcome. We hope to see you there!

The Groundplane

Announcements

SBARA's monthly meeting is November 13th. Beginning at 7:30pm

Our meeting location is at Hurricane Electric. The address in Fremont is:

760 Mission Court —

Come to the meeting and bring your HT, HF Rig and Antenna!!

The Ground Plane — KU6S
http://www.sbara.org
South Bay Amateur Radio Association —
SBARA
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